

Louisville Metro Air Pollution Control District

PM_{2.5} Monitoring Report

April 2010

This report summarizes PM_{2.5} data collected by Federal Reference Method (FRM) samplers through April 2010. The data are subject to further quality assurance checks and are not final.

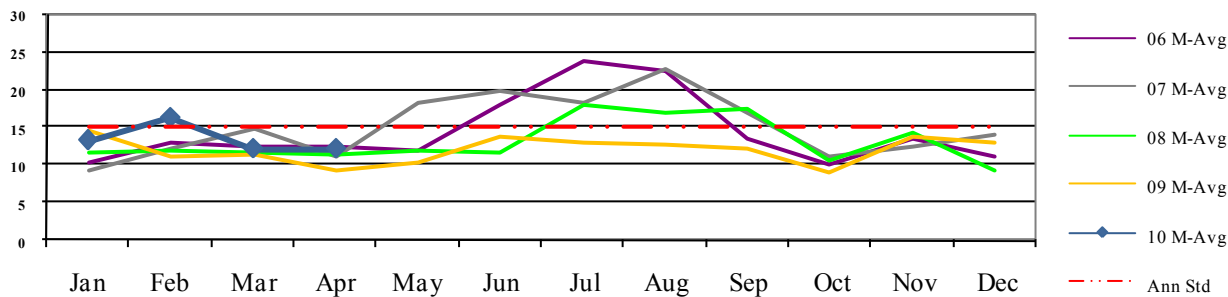
PM_{2.5} Monthly Data Summary April (µg/m³)

<u>Site Name</u>	<u>Daily Maximum Conc. & Date</u>	<u>Daily Minimum Conc. & Date</u>	<u>Sample Recovery</u>	<u>Monthly Average</u>
Southwick	23.6 (04/15)	4.6 (04/08)	97%	12.0
Wyandotte	25.0 (04/15)	4.4 (04/08)	100%	12.5
Cannons Lane	19.0 (04/23)	4.0 (04/08)	90%	11.5
Watson Lane	21.0 (04/14)	3.8 (04/08)	100%	12.9
Overall	25.0 (04/15)	3.8 (04/08)	97%	12.2

PM_{2.5} Monthly Averages Tracking Table for 1999-2010

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Months >15.0 µg/m ³
Ann Std	15	15	15	15	15	15	15	15	15	15	15	15	
99 M-Avg	14.7	13.8	12.4	12.7	18.1	23.4	26.6	19.5	15.6	17.4	16.1	12.6	7
00 M-Avg	15.8	16.4	13.4	13.6	17.1	17.7	23.5	21.2	13.3	19.7	15.6	17.1	9
01 M-Avg	21.9	13.9	15.2	13.3	17.7	20.5	24.6	27.4	16.1	13.8	15.8	12.4	8
02 M-Avg	13.1	10.0	12.3	11.4	15.9	22.3	30.4	23.8	21.7	13.2	11.8	15.6	6
03 M-Avg	12.2	16.3	15	14.6	13.1	18.6	21.7	23	17.3	12.5	12	10.6	5
04 M-Avg	10.5	15.7	10.1	11.3	13.4	15.9	17.1	18.4	17.6	13.8	11.1	11.1	5
05 M-Avg	11.7	17.1	14.3	13.1	14.9	19.6	20.2	19.8	24.1	16.1	12.6	15.5	7
06 M-Avg	10.3	13.0	12.5	12.6	11.9	18.1	23.9	22.5	13.6	10.1	13.6	11.1	3
07 M-Avg	9.3	12.2	14.9	11.2	18.4	19.9	18.3	22.8	16.9	11.1	12.5	14.1	5
08 M-Avg	11.8	12.0	11.9	11.6	12.1	11.8	18.1	17.1	17.6	10.6	14.3	9.4	3
09 M-Avg	14.6	11.1	11.3	9.3	10.3	13.9	13.1	12.6	12.1	8.9	13.8	12.9	0
10 M-Avg	13.3	16.3	12.2	12.2									1

PM_{2.5} Monthly Averages 5-Year Trend



National Ambient Air Quality Standards (NAAQS):

National Ambient Air Quality Standards consists of Primary and Secondary Standards. The Primary Standards define levels of air quality which EPA judges are necessary, with an adequate margin of safety, to protect the public health. The Secondary Standards define levels of air quality which EPA judges necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. For PM_{2.5} the levels of the Primary and Secondary Standards are the same.

Annual Standard:

The annual standard is designed to provide an appropriate level of protection from long-term exposures to PM_{2.5}. Table 3 compares data collected from 2004 through year-to-date 2010 to the Annual National Ambient Air Quality Standard for PM_{2.5}. The Annual National Ambient Air Quality Standard for PM_{2.5} is met when the annual design value is less than or equal to 15.0 µg/m³. The design value is based on 3 consecutive, complete years of air quality data and is calculated by taking the 3-year average of annual means.

PM_{2.5} Annual Means and Annual Design Values

Site Name	Annual Means µg/m ³							Annual Design Values 2004-2006	Annual Design Values 2005-2007	Annual Design Values 2006-2008	Annual Design Values 2007-2009	Annual Design Values 2008-2010
	2004	2005	2006	2007	2008	2009	2010 ¹					
Southwick	14.5	16.6	15.0	15.1	13.2	12.2	12.8	15.4	15.6	14.4	13.5	12.7
Wyandotte	14.0	16.4	15.2	14.9	13.4	12.5	13.4	15.2	15.5	14.5	13.6	13.1
Cannons Lane*	13.7	16.7	13.9	15.0	13.4	11.7	12.7	14.8	15.2	14.1	13.4	12.6
Watson Lane	12.6	16.4	13.7	15.4	12.8	11.6	13.3	14.2	15.1	13.9	13.3	12.6

Bold: Design value site for Louisville.

¹Year-to-date data for 2010.

* Cannons Lane replaced Barret in 2009. 2003-2008 data are from Barret.

24-Hour Standard:

The 24-Hour standard is designed to provide an appropriate level of protection from short-term exposures to PM_{2.5}. Table 4 compares data collected from 2004 through year-to-date 2010 to the 24-Hour National Ambient Air Quality Standard for PM_{2.5}. In December 2006 the EPA changed the 24-hour standard from 65µg/m³ to 35µg/m³. The standard is met when the 24-Hour design value is less than or equal to 35µg/m³. The design value is based on 3 consecutive, complete years of air quality data and is calculated by taking the average of the 98th percentile value for each of the 3 years. The 98th percentile is the daily value out of a year of PM_{2.5} monitoring data below which 98 percent of all daily values fall.

PM_{2.5} Annual 98th Percentiles and 24-Hour Design Values

Site Name	Annual 98 th Percentile Value µg/m ³							24-Hour Design Values 2004-2006	24-Hour Design Values 2005-2007	24-Hour Design Values 2006-2008	24-Hour Design Values 2007-2009	24-Hour Design Values 2008-2010
	2004	2005	2006	2007	2008	2009	2010 ¹					
Southwick	31.1	42.9	36.0	34.1	28.7	24.3	27.3	36.7	37.7	32.9	29.0	26.8
Wyandotte	30.6	40.1	36.3	33.5	29.5	25.7	27.9	35.7	36.6	33.1	29.6	27.7
Cannons Lane*	28.8	43.2	36.7	31.9	30.7	24.1	25.2	36.2	37.3	33.1	28.9	26.7
Watson Lane	25.8	36.5	32.5	32.5	28.6	24.7	26.1	31.6	33.8	31.2	28.6	26.5

Bold: Design Value for Louisville.

¹Year-to-date data for 2010.

* Cannons Lane replaced Barret in 2009. 2003-2008 data are from Barret.

Louisville Metro Air Pollution Control District

8-Hr Ozone Monitoring Report

April 2010

This report summarizes ozone data measured by Automated Equivalent Method (AEM) samplers located within the Louisville Metropolitan Statistical Area through April 2010. The data are subject to further quality assurance checks and are not final.

2010 8-Hr Ozone Maximum Values and Exceedances (ppb)

Date	# of 8-Hour Exceeds	# of Days with Exceeds	Charlestown (CH) Clark Co. IN	New Albany (NA) Floyd Co. IN	Bates (BA) Jefferson Co. KY	Watson (WS) Jefferson Co. KY	Cannons Lane (CL) Jefferson Co. KY	Buckner (BK) Oldham Co. KY	Shepherds-ville (SH) Bullitt Co. KY	AQI Forecast / AQI Actual	AQA Issued
4/01/10	0	0	66	60	70	59	68	69	69	40/84	No
4/11/10	0	0	68	63	68	67	72	71	ND	60/90	No
4/12/10	1	1	75	67	74	<u>69</u>	<u>77</u>	75	73	45/104	No
4/13/10	2	1	75	71	75	71	<u>79</u>	<u>74</u>	<u>76</u>	90/109	No
4/14/10	4	1	<u>79</u>	<u>64</u>	<u>77</u>	71	<u>79</u>	<u>76</u>	<u>70</u>	105/109	Yes
4/15/10	2	1	<u>70</u>	70	<u>71</u>	70	<u>80</u>	<u>77</u>	73	106/111	Yes
Totals	9	4	1	0	1	0	4	2	1		2

Values in **Bold/Red** exceed the level of the 2008 ozone standard of 75 ppb (parts-per-billion).

Underlined values are the 4th highest values recorded at each site.

An Air Quality Alert (AQA) is issued when the Air Quality Index (AQI) is forecasted to be greater than 100.

8-Hour Standard and Exceedances:

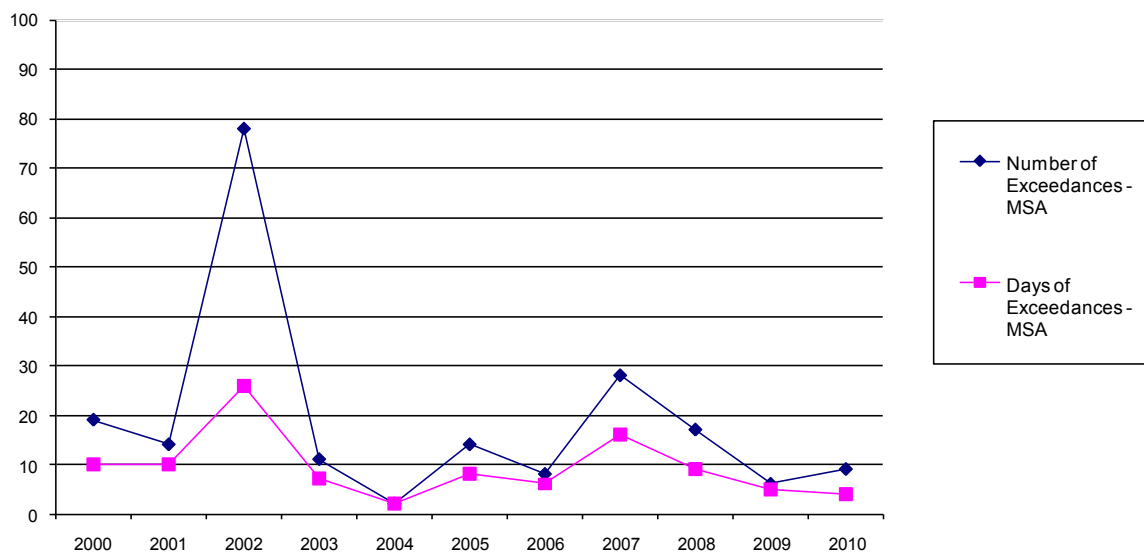
The National Ambient Air Quality Standard for ozone is measured as an 8-hour average. An ozone exceedance occurs when the highest 8-hour average for each day is greater than the NAAQS. For 2000-2007 the NAAQS was 80 ppb and the exceedances reported for that time period are based on that standard. In 2008 the NAAQS was changed to 75 ppb and the exceedances (8-hour average >75 ppb) reported are based on the new standard.

2000–2010 8-Hour Ozone Exceedance Summary

Year	Charlestown (CH)	New Albany (NA)	Bates (BA)	Watson (WS)	WLKY& Cannons Lane* (CL)	Buckner (BK)	Shepherds-ville (SH)	Louisville MSA Total		Jefferson County Total	
								Exceedances	Days	Exceedances	Days
2000	4	0	5	1	3	4	2	19	10	9	6
2001	4	0	2	1	1	4	2	14	10	4	3
2002	17	13	4	15	7	12	10	78	26	26	19
2003	4	4	1	0	0	2	0	11	7	1	1
2004	0	0	1	0	0	0	1	2	2	1	1
2005	3	2	0	4	1	4	0	14	8	5	4
2006	3	1	0	1	0	3	0	8	6	1	1
2007	8	3	8	4	2	3	0	28	16	14	11
2008	3	3	2	2	1	4	2	17	9	5	5
2009	0	0	2	4	0	0	0	6	5	6	5
2010	1	0	1	0	4	2	1	9	4	5	4

*Cannons Lane replaced WLKY in 2010. Data prior to 2010 are from the WLKY site.

Historical Graph of 8-Hour Ozone Exceedances



8-Hr NAAQS:

Attainment of the 8-Hour Ozone National Ambient Air Quality Standard at an individual monitor is achieved when the three-year average of the annual fourth-highest daily maximum (4th maximum) 8-hr average ozone concentration is less than 76 ppb. This three-year average is the design value for that monitor.

2000-2010 8-Hour Ozone 4th Maximums

Year	Louisville MSA	Charlestown (CH)	New Albany (NA)	Bates (BA)	Watson (WS)	WLKY & Cannons Lane* (CL)	Buckner (BK)	Shepherdsville (SH)
2000	90	85	77	90	76	84	85	82
2001	86	86	76	81	81	77	86	82
2002	100	100	97	85	96	88	91	91
2003	90	90	86	72	75	73	82	72
2004	76	74	71	70	70	68	76	68
2005	89	80	80	79	85	74	89	80
2006	83	79	76	74	77	67	83	71
2007	90	90	82	86	85	79	84	78
2008	77	75	75	72	75	68	77	69
2009	78	67	63	68	78	65	68	64
2010	77	70	64	71	69	77	74	70

*Cannons Lane replaced WLKY in 2010. Data prior to 2010 are from the WLKY site.

8-Hour Ozone Design Value Summary

Year	Louisville MSA	Charlestown (CH)	New Albany (NA)	Bates (BA)	Watson (WS)	WLKY & Cannons Lane* (CL)	Buckner (BK)	Shepherdsville (SH)
00-02 Avg.	90 CH	90	83	85	84	83	87	85
01-03 Avg.	92 CH	92	86	77	84	79	86	81
02-04 Avg.	88 CH	88	84	74	80	76	82	77
03-05 Avg.	82 BK	81	79	73	76	71	82	73
04-06 Avg.	82 BK	77	75	72	77	69	82	73
05-07 Avg.	85 BK	83	79	79	82	73	85	76
06-08 Avg.	81 CH/BK	81	77	77	79	71	81	72
07-09 Avg.	79 WS	77	73	75	79	70	76	70
08-10 Avg.	74 WS	70	67	70	74	70	73	67

Bold: Design Value Sites for respective periods.

*Cannons Lane replaced WLKY in 2010. Data prior to 2010 are from the WLKY site.

8-Hour Ozone Design Value Trend Chart for Louisville MSA Using the 2008 Standard as the Trend Line

